CHAPTER 36

Structuring Multipage Sites

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Now it's time to move from defining the message of your site to the delivery of that message on Web pages. In this chapter, we discuss the variety of choices you have to implement a multipage site and the pros and cons of each choice. We talk about the pitfalls to avoid when creating multipage sites. This chapter discusses the types of organization and the architectures available to you when you build a multipage site. Navigation also figures prominently in this chapter. If you are going to have more than one page in your site, you need to have a logical, intuitive, consistent way for your visitors to get around it. Finally, we discuss maintaining your site.

Possibilities and Problems of Multipage Sites

Most Web sites are implemented across multiple pages. Isn't that the great thing about the Web? You can break up your content by type and group it together, so if visitors to your site only want to know how to order spare parts for the exercise equipment you manufacture, they needn't read through all your marketing literature and the entire service manual.

Good and bad things exist about breaking your content into multiple pages: both for you, as the Webmaster, and for your visitors. First, let's look at the pros and cons for your visitors (because those should receive greater weight in your calculus).

The Pros of multipage sites for your visitors

Your visitors can (theoretically) find what they want without having to read through everything on your site. It is a great feeling to go to a site with a clear idea of what you want and to find it within two or three clicks, even when you have never been to that site before. Visitors will return to such a site often.

A site is richer with multiple pages. There is more content to choose from. A well-done multipage site gives visitors the choice of knowing a little or a lot about the topic in which they are interested.

All the information visitors need is there. While visitors certainly don't want all the information at once, they may eventually want all the information. One of the nice things about the Web is supposed to be that you don't have to wait on hold to get answers.

The Cons of multipage sites for your visitors

Navigation can be confusing. What may be obviously clear directions to you may not even be noticed by visitors, especially first-time visitors. Sometimes subtle imagemaps (graphics with hot spots that, when clicked, take you somewhere else, just like hypertext), which may be obvious to the designer, may not be at all obvious to visitors. This is something you can avoid with good design. Figures 36-1 and 36-2 show two Web sites, one with subtle navigational tools and one with very clear navigational tools.

Imagemap. An *imagemap* is an image with clickable regions. Each clickable region acts as a hyperlink. Plenty of free or cheap software exists to help you convert an image into an imagemap. This tool is built in to many HTML editors.

For an in-depth examination of imagemaps, including instructions for creating one, see Chapter 39.

Loading time can become a problem with multipage sites. If visitors have to wait for big, cumbersome graphics to load for each page, they may well get impatient. Fortunately, technical and design solutions exist to help avoid this problem, which we discuss later.

Printing can be more complicated. If the content you have split into multiple pages is something you imagine people may want to print, and they have to go to more than one page to print the entire thing, then dividing the content into multiple pages is a hassle for your visitors.

Of less import, but certainly worth mentioning, are the pros and cons of developing a multipage Web site to you, the Webmaster.

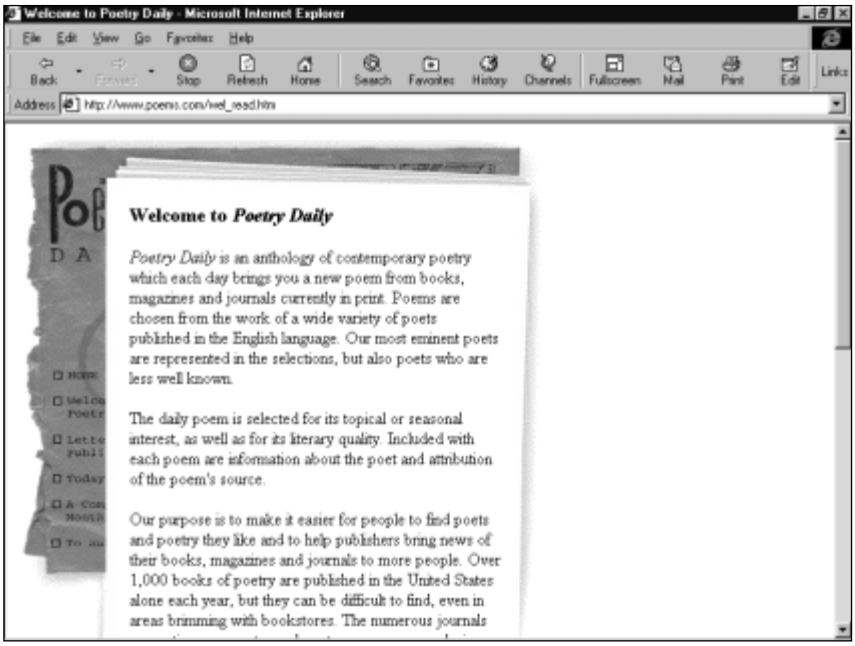
Welcome to Poetry Daily - Microsoft Internet Explorer
File Edit View Go Favorites Help
Back Forward Stop Refresh Home Search Favorites History Channels Fullscreen Mail Print Edit Links
Address http://www.poems.com/wel_read.htm
Welcome to *Poetry Daily*
Poetry Daily is an anthology of contemporary poetry which each day brings you a new poem from books, magazines and journals currently in print. Poems are chosen from the work of a wide variety of poets published in the English language. Our most eminent poets are represented in the selections, but also poets who are less well known.
The daily poem is selected for its topical or seasonal interest, as well as for its literary quality. Included with each poem are information about the poet and attribution of the poem's source.
Our purpose is to make it easier for people to find poets and poetry they like and to help publishers bring news of their books, magazines and journals to more people. Over 1,000 books of poetry are published in the United States alone each year, but they can be difficult to find, even in areas brimming with bookstores. The numerous journals

Figure 36-1: Can you find the navigational tools on this site? Perhaps too subtle. © Poetry Daily.

Figure 36-2: How about on this site? Much more obvious, don't you think?

The Pros of developing a multipage site

You can break up your content into manageable pieces. For most sites, this is going to be necessary. The question you must answer through the rest of this chapter is: How do I break up the content? Breaking up your content is great if a team is developing your site. Each Web page is stored in a separate file, so if you had several people writing to the same file, you'd have a mess. Dividing the work among the team members is much easier when the site is also divided.

Updating your content is easier. Different pages require different update frequencies. Much of the site you should be able to leave alone for months at a time (the "Contacting Us" page, for example), which leaves you more time to update the pages that do need work.

The Cons of developing a multipage site

If you aren't focused on your message and your visitors' needs, you could end up breaking content unnecessarily. This is a major inconvenience for your visitors, who won't know intuitively where to go to find what they need.

Maintenance of multipage sites requires more organization. You are going to have more files to monitor. Especially if you are working with a team, you need to have good organizational skills and even tools that facilitate organization to make sure nothing falls between the cracks and you don't have two people overlaying each other's work.

Chapter 8 has detailed information about team and site management tools.

Dividing the Site

How do you divide your content? Included in this question is *how much* do you divide your content? The tricky part is deciding how to break up your content and how to indicate to your visitors that the content you have available *is* available. This is one of the two main questions you want to have answered by the end of this chapter. The other main question is: How do you provide navigation around your site? First, we address dividing your content.

You can divide your content in three ways, assuming it needs to be divided at all. These are as follows:

- By origination of content
- By type of content
- By visitor type

By origination of content

If your organization is large enough to have multiple departments, then you may think of dividing your content by where the content comes from or the functional group that owns that content. In this approach, your Web site organization reflects your organizational chart to some degree. Figure 36-3 shows an example of an organizational chart.

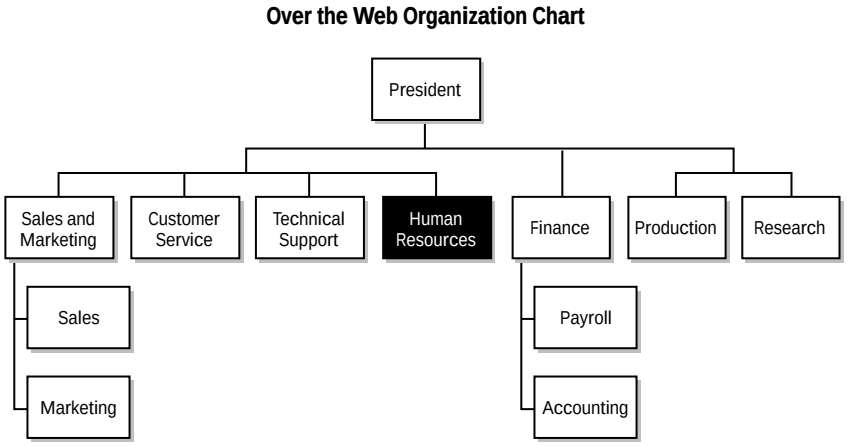

Figure 36-3: An organizational chart

It may make sense to divide the site by functional unit. In the case of Over the Web, the Web site may be organized as shown in Figure 36-4. Just because only one box exists for an item (say, product listings) doesn't mean there is only one page; it's just easier to represent it that way for this example.

Links, which simply aren't apparent in this type of site map, would be across the chart. For example, "Contacting us" may merit its own link on the highest level; you'd indisputably want to link to it from at least the "Online shopping" page (in case visitors have questions before they order), the Press page, and the Job listings page. This is also true with "Information about upcoming versions," which is listed under Research; marketing would certainly want to link to that.

Dividing your site by where the content originates is not a bad way to go, but read through the other two systems before you commit to it. For large organizations, this may be the only way to manage your content reasonably. If you use links effectively, this type of organization can appear intuitive and seamless. If you use links poorly, or if communication between departments (or Web builders in different departments) is poor, it can look like the right hand doesn't know what the left hand is doing.

By type of content

Another way to organize your site is by type of content. This organizational scheme often results in a similar site map to the previous system of site organization, by functional unit of your organization. The difference in breaking up your content by type is that you are less interested in where the information for the content comes from than what type of information it is. For example (from the preceding example), the finance department is the place where strategic alliances are brokered. They are the ones who make these arrangements, but who would think to look there? Figure 36-5 reflects this new information.

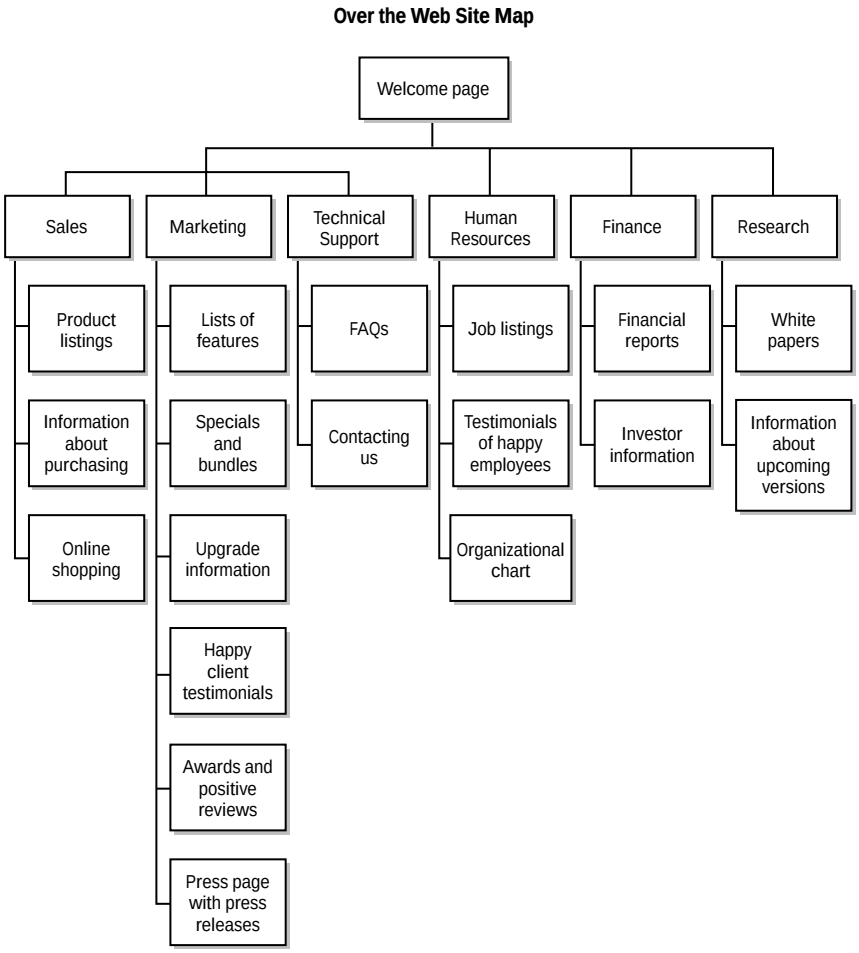

Figure 36-4: A site map based on the preceding organizational chart

Even if the marketing department has a link to the Finance page or the Strategic alliances page, you have to wonder if that is adequate prominence for this information. If the marketing department isn't involved in arranging these alliances, then they probably won't be enthusiastic about promoting them; heck, they may not even be aware of them!

Another obvious place to question the logic of the site organization, shown in Figure 36-5, is in the separation of sales from marketing. Wouldn't it make sense that a features list would be something you'd want to see on the way from Product listings to Online shopping?

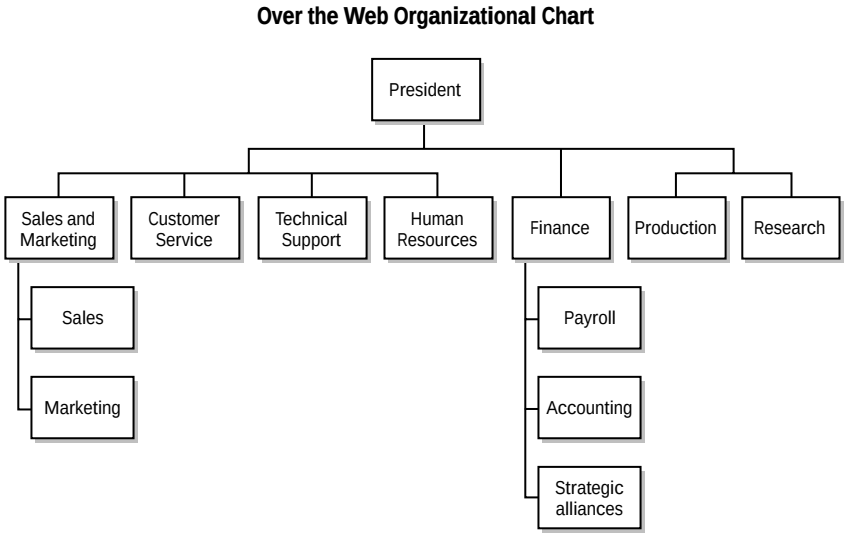

Figure 36-5: This organizational chart reflects that the finance department negotiates strategic alliances.

If this site were now to be organized by type of information, instead of origin of information, then Figure 36-6 reflects what the site map would look like.

By visitor type

Another way to organize your site is by your visitors' interests. Remember them? We always come back to them eventually and so will you. Can you break your visitors into groups? Say, members and nonmembers? That's too easy. Here are some other examples: end users, programmers, and other interested parties; doctors and patients; activists and citizens; clients, potential clients, and others. Whatever division you come up with, *others* will always be the last group in the list. This is simply the nature of the Web. You can't predict who is going to show up on your site.

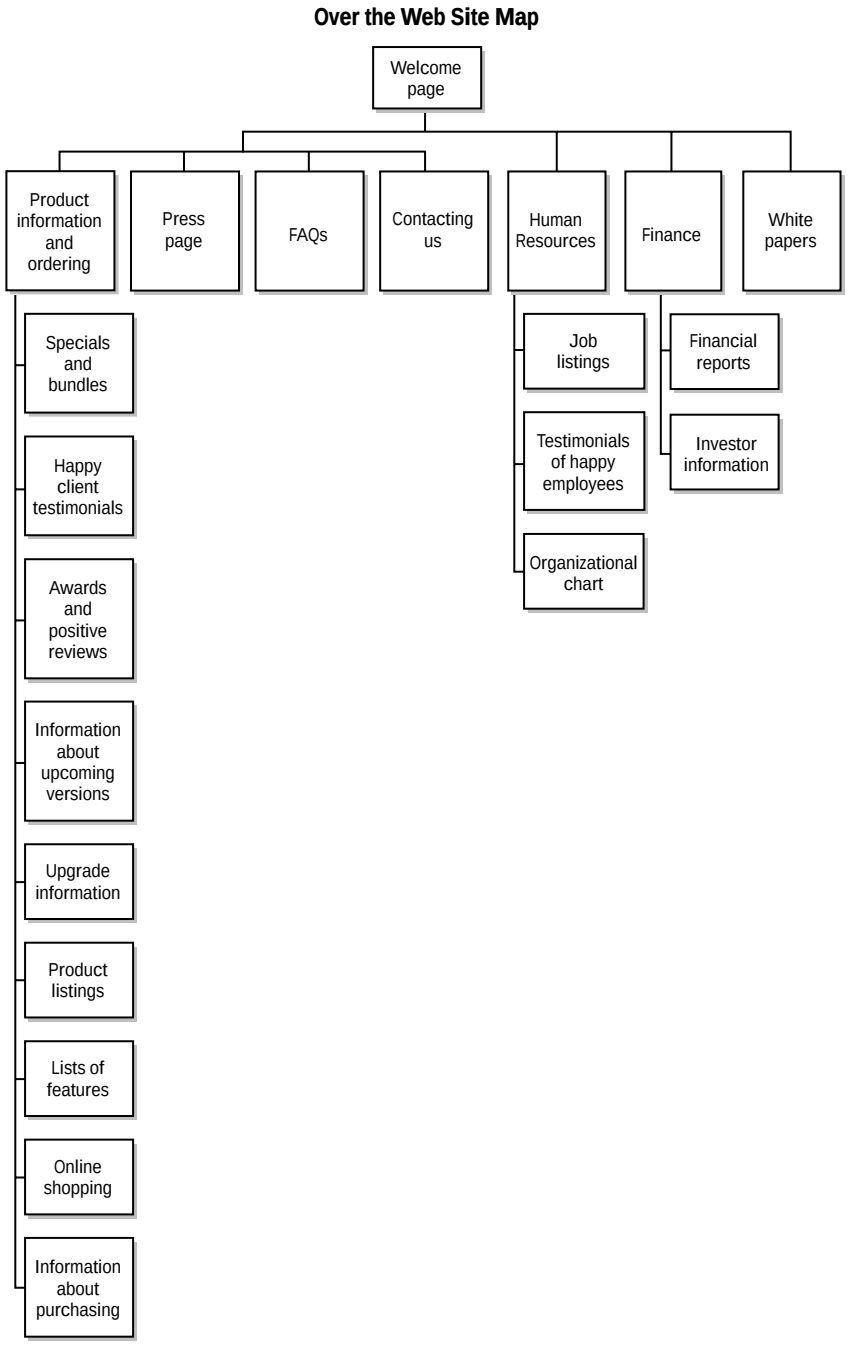

Figure 36-6: Organization by type of content

To continue with this example, Over the Web has decided to consider breaking up their site by visitor type. They have broken their visitors into the following groups: customers (or people who are interested in becoming customers), the press, job hunters, investors, programmers, and others. Because knowing what *others* want to see is impossible, they won't have their own pages. Figure 36-7 shows an attempt at reorganizing the site along these lines.

Dividing Content

How much information goes on a page? Even if you have determined which of the previous models suits your site best, you still may need to break up content within each section as well. Within what we represented as the Press page in the preceding example, will everything go on one page or will there be multiple pages? How do you decide?

Some of the factors you need to consider are as follows:

- What information do visitors need to see at once? Don't think in terms of the length of the material; think in terms of the use of the material. How do you anticipate the information being used? Most of the time, these decisions are between having one longish page and breaking the same material into multiple pages. If you think most of the people who come to the first part of your material will proceed in a linear manner through the material, then save them the trouble and put all the material on one page.
- Will visitors be printing this information? If you want your visitors to be happy with their experience of visiting your site, don't annoy them by dividing information they may want to print. Sure, some people print everything and you can't plan around them, but some pages just lend themselves to printing. One example of this is a review of a book or a software package. Another is instructions. Who would want to print only half a set of instructions?
- As you provide the information visitors need, are there points where visitors may want to go more than one place? If yes, then stop the page and give the visitor choices of places to go. If no, then continue the page.
- What about the notion your visitors should never have to scroll? This is a crazy idea. Sure, you want the screen that visitors see to look complete, but this doesn't mean every time you have enough text to fill a screen, you should force the visitor to click and wait to link to what is really only a continuation of the same material. User Interface Engineering (`http://world.std.com/~uieweb`) did a study that showed visitors don't mind scrolling to get to the information they are seeking.

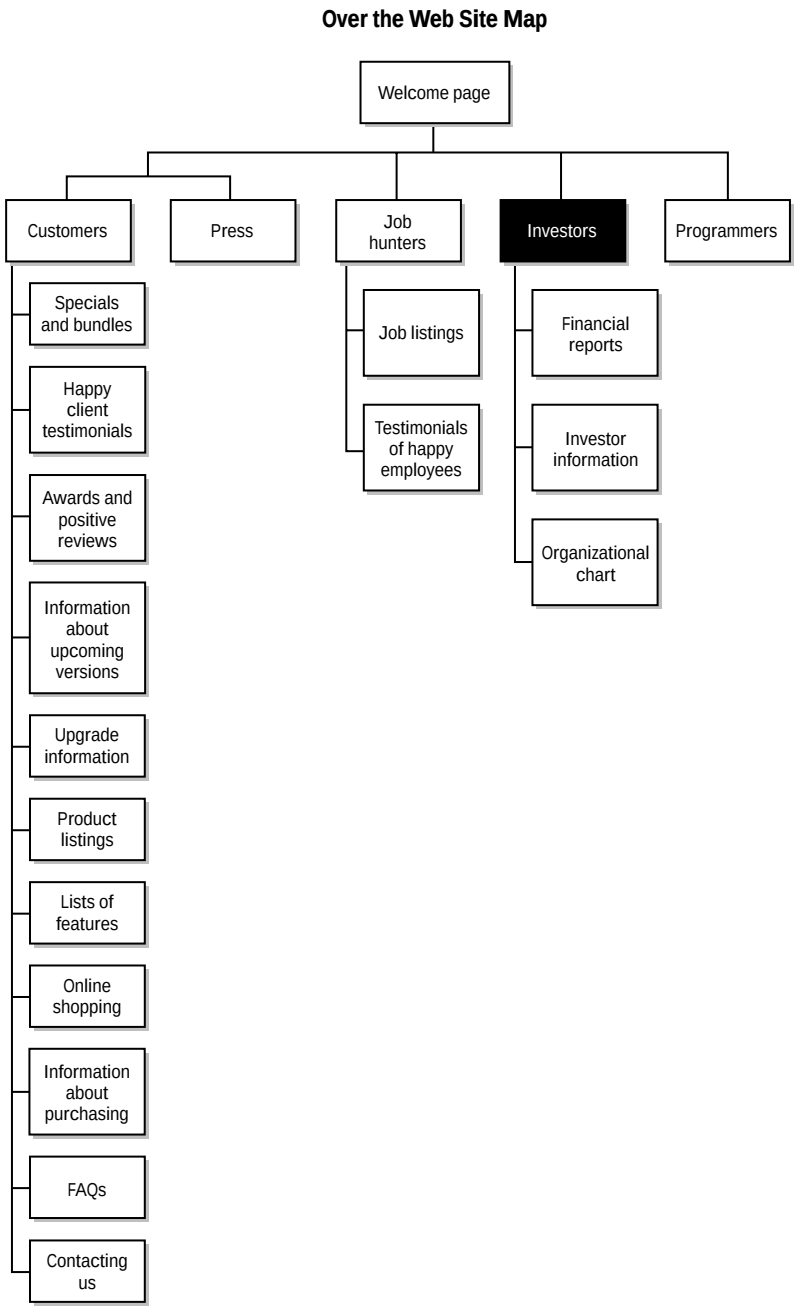

Figure 36-7: A site map by visitor type

Site Architecture

We've already touched on site architecture, but it deserves more attention. What is the architecture of your site going to be? Because we are confined to a two-dimensional space, the previous site maps all look hierarchical. That is simply the easiest way to represent a site. In fact, a site map may look more like the one represented in Figure 36-8.

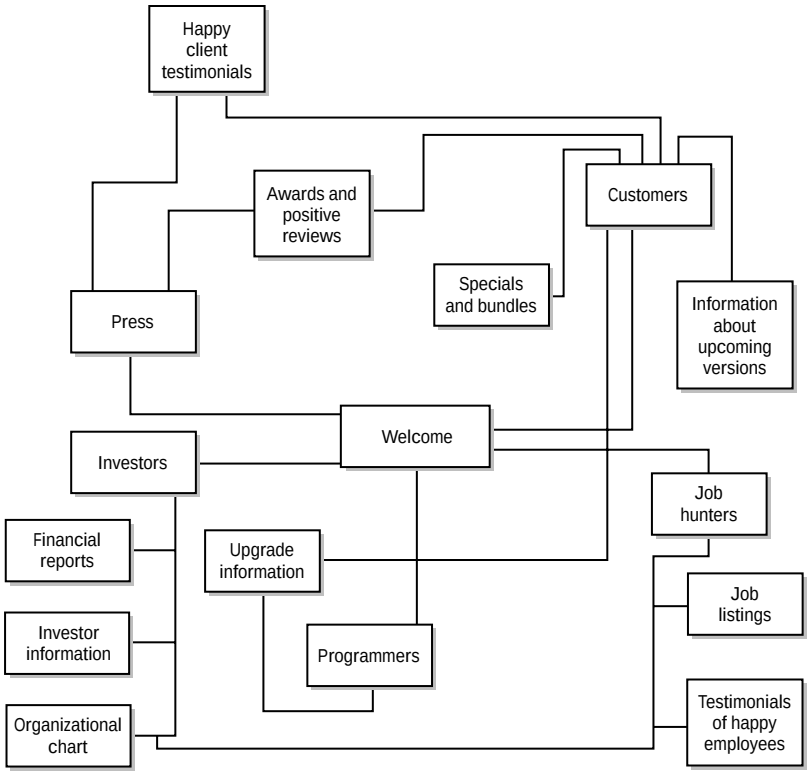

Figure 36-8: Mapping your site in a nonhierarchical way is messy.

Site architecture has to do with the way that pages link to each other. On one extreme, there is a linear site architecture, where you torture your visitors by forcing them to click a link to get to another page, where there still are no choices. On the other extreme, there is the completely anarchical architecture, where pages link to each other without any structure behind the links — call it *stream-of-consciousness* architecture. In the middle, you have hierarchical sites. We discuss all three of these in the following sections.

Linear architecture: The forced march

Hypertext is supposed to give readers the control to decide what they want to learn about next and when they want to know more. Only a control freak would work in this freedom-loving medium and then try to deny visitors their rights as Web surfers. People don't especially like to sit through presentations. When you arrange your site with linear architecture, this is what you force your visitors to do.

Linear architecture assumes that pretty much everyone wants to see pretty much everything. There are times when linear architecture may be appropriate for a portion of your site. Suppose you have a site that, among other things, has a virtual museum exhibit. In most museum exhibits, the material is arranged in a particular order for a particular reason. How might the site map look for this kind of architecture? See Figure 36-9.

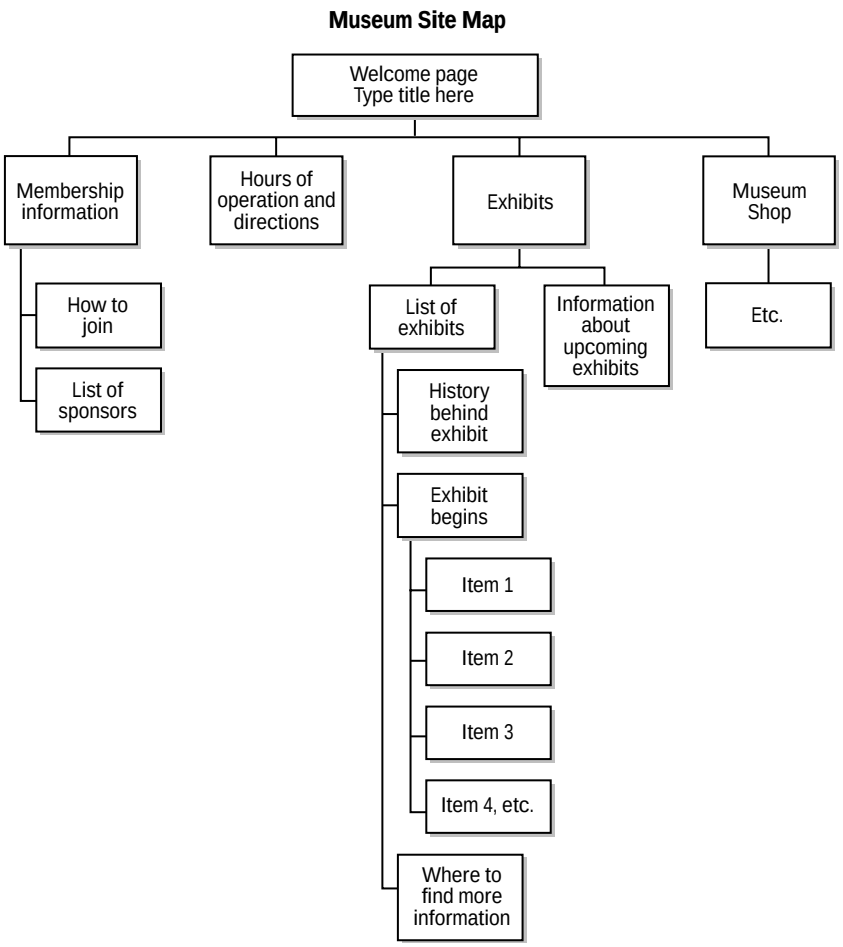

Figure 36-9: Site map including a linear section

The key to using linear architecture is to not apply it to the entire site. Certain areas of a site may lend themselves to a linear approach, but it is inconceivable that the entire site should be a forced march. Other times you may need to use a linear architecture are when giving quizzes (a quiz to determine whether you are left-brained or right-brained) and when giving a virtual tour (of the Blue Ridge Mountains on Scenic Drive in Virginia).

Hierarchical architecture

Hierarchical architecture depends on the idea of grouping content by some criteria, and then providing a list of the members of the group. Each item in a group can also be a group, but you can get carried away with this if you are not careful. Eventually, your visitors want to come to something other than a list of items. They want to come to real content. Real content is something more substantive than a list of places to go (unless your site is a transit site and then this doesn't apply). Most sites use a hierarchical architecture for the framework. All the previous examples use a hierarchical architecture.

Hierarchical architecture is a useful way to organize your site. It is relatively easy to map and to divide a hierarchical site for team development and maintenance. Best of all, visitors understand the idea of a hierarchical site, where each subsequent page has a greater level of detail until, eventually, they find the material they were seeking.

Avoid extreme devotion to hierarchy

Slavish adherence to hierarchical architecture can be a problem. Visitors should not have to click more than two or three times to get to a page where it is clear to them they are at least in the neighborhood of the material they need.

What makes you have a positive experience on a site? Your perception. If you *feel* like you can find the information you want — based on the navigational controls visible to you on the Welcome Page or your previous visits to this site — and within two or three clicks you get to the neighborhood where you believe the information should be and then two clicks later, you find it, you have a positive experience with that site. You don't feel like you wasted your time (or worse yet, that *they* wasted your time). If you keep coming to lists that either don't have the level of detail you need or a vocabulary you recognize, then you get frustrated and leave.

Visitors shouldn't have to click four or five times to feel they are finally in the right area. Isn't this why site searches are so popular? When you go to a site where you don't know if they have what you want, you click Search on the Welcome page. On the Search page, you type your keywords and click Find. Then you see the list of pages. That was two clicks. Your keywords may have been overly broad and your search may not have been effective, but, within two clicks, you feel you can find what you came to find or you learn the site doesn't have what you were looking for and you go elsewhere.

Visitors failing to find what they want on a site, by the way, is not a disaster. Your visitors can have a positive experience on your site even if they don't find what they want, as long as they quickly realize they aren't going to find it, and they are confident they aren't missing it only because of the site's organization. When your visitors begin to think, "It must be here somewhere, I just can't find it," click around your site for 20 minutes looking for it, and then finally leave, this has not been a positive experience!

Anarchy

Sound emancipating? Forget it. Anarchy only works for really small sites. An *anarchical hierarchy* (a contradiction in terms?) is based on the idea that organization isn't necessary and visitors only want to wander through the site, not looking for anything in particular. They can click any link they find, but no guarantee exists they can ever get back to a page they visited, unless they click the back button the correct number of times.

This feeling of groundlessness that anarchy creates is not positive for visitors. They aren't familiar with this feeling and it assumes visitors have nothing better to do than wander aimlessly around your site. It may work if your audience consists of college students with free Internet access and a need to avoid studying, but unless you are really clever with this approach, it will fail and so will your site.

A seamless web

How, then, do you create the feeling that your site is a seamless web of related content, the page visitors want is only a click or two away, and visitors will be able to find this content again? You need to find the right combination of the various architectures for your content and you need good, consistent navigational tools.

The following rules will help:

- **Have a search option on your site.** This requires that your site be indexed. Software that indexes sites is included with many Web servers (especially NT Web servers). Unfortunately, installing indexing software on UNIX servers is a bit of a trial. If you have an internal server, ask your systems administrator about this option. If you have an ISP, ask them. Especially as your site grows, your visitors will benefit greatly from the ability to search your site. Being able to search if you keep archival information on your site is also useful. Often archival information is only available by search (it is not linked into the current material on your site).
- **Have navigational controls in the same place on every page.** We discuss this further in the next section. It is that important.

- **Don't be afraid to link across divisions.** Linking from a page full of highly technical information about your product to a page of job listings in your company makes perfect sense if your company needs people who are highly technical. Information about contacting your company (including the mailing address) should be available from lots of places; don't expect visitors to remember they can get to it from your Welcome Page. Remember: Links are free; your visitors' time is not. Because of all these links across different areas, having your files organized according to some formal system (as discussed in Chapter 4) is especially important if you have a team working on your site. Otherwise, your team members may rearrange their own files, not realizing they just broke all your links.
- **Select an architecture and be consistent.** Visitors want to know what to expect. Whichever architecture you select, be consistent and make it obvious to visitors. They don't want to learn different site navigation on each page.

Providing Navigational Aids

Now it's time to think about visitors again. We won't let you forget them for a while. Whichever architecture you select, your job is to make getting around your site easy for visitors. They need to know how to get to what they seek, how to get back to the Welcome page, and how to find what they seek on subsequent visits.

You can use several tools to make the process of navigating around your site as painless as possible for your visitor. Let's start with the ideal: In the ideal world, your site would be able to read visitors' minds (or read some sort of configuration file their browsers provide) to give them a Welcome page that showed exactly what they were seeking. You can't do this today, but no technical reason exists why you couldn't do it (if not the mind-reading part, at least the configuration file part) in a few years.

More realistically, you can provide some or all of the following devices to make navigation intuitive and easy for your visitors:

- **Table of contents.** Easy enough, right? Using client-side scripting techniques (you learn about these later, and they are only available in HTML 4), you can even make your table of contents *expand and retract*. This means if visitors click a section heading, they see a listing of the contents of that section, right onscreen, without going elsewhere. If they click a different section heading, the details of the first section they clicked retracts and the new section expands. What a great way to give your visitors the information they need, conserve screen real estate (more on this later), and avoid making users bounce all over the place!

- **Search function.** We talked about this previously. It isn't much extra work to index your site and provide for searching. You can find plenty of free or inexpensive tools to do this if your Web server doesn't include site indexing. You want to make certain the search is available from every page. Remember: Links are free.
- **Site Map.** This one is a little bit trickier to implement. You need to think about a way to show — graphically — where things are on your site. This is done most elegantly with JavaScript, but it can be difficult.
- **Consistently placed navigational bar or buttons.** Of all of these devices, this is the easiest to implement. Nearly every decent site has navigational buttons or bars. Visitors expect them to stay in the same place from one screen to another. Don't surprise them.
- **Drop-down list of places to go.** This is a great way to save page real estate. You can include an enormous list of places to go, or a short one, and it takes up the same amount of space: one line the width of the widest entry in your list. You can use this approach for links to sections of your site or for links to your product information.

Maintaining a Multipage Site

You need to start thinking about many maintenance issues. A reasonably comprehensive list follows:

- **Schedule face-lifts to the site.** While we haven't talked about the look of your site yet, you need to make certain you update your look periodically. You don't want to change it just because you discovered a new font you like, but you may want to change it when your organization makes changes to marketing literature. You'll also want to change your site to take advantage of the latest technologies and looks being used by other cool people on the Web.
- **Run link-checking software on a regular schedule.** If your site has more than a dozen pages, you'll want to take advantage of link-checking software (see Figure 36-10). This product tests out every link in your site and reports back with a list of broken links. Acquiring this software, learning it, and running it on a regular schedule is worth your peace of mind.
- **Test your site daily or find an agent to do it and to notify you if it is down.** If your site is hosted elsewhere and you don't have reason to visit your site daily, how will you know whether you are up and running or dead in the water? A number of ways exist to check your site and to make sure it is up. The easiest, but least reliable, is to go to it yourself. Remember, every time an agent checks to see whether your site is up, it counts as a hit!

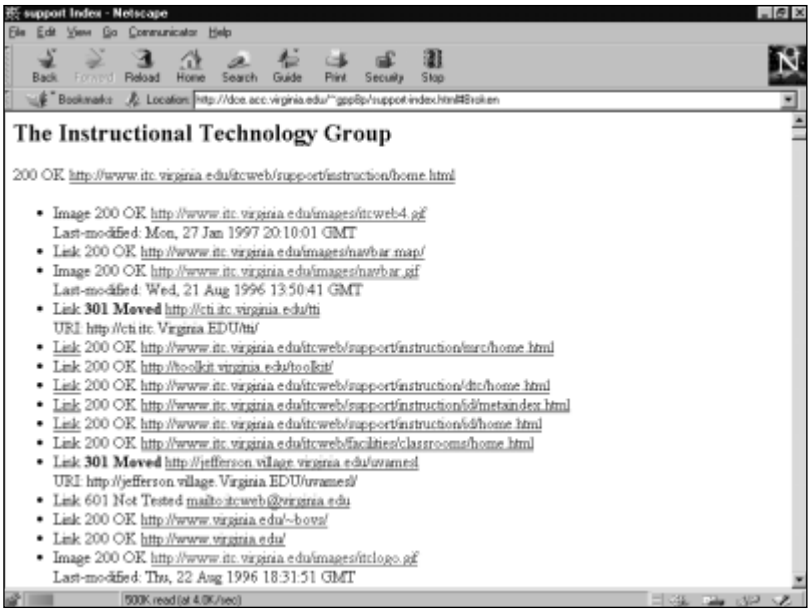
support Index - Netscape
File Edit View Go Communicator Help
Back Forward Reload Home Search Guide Print Security Stop
Bookmarks Location: http://doe.acc.virginia.edu/~gpg8p/support-index.html#Broken
The Instructional Technology Group
200 OK http://www.itc.virginia.edu/itcweb/support/instruction/home.html
Image 200 OK http://www.itc.virginia.edu/images/itcweb4.gif
Last-modified: Mon, 27 Jan 1997 20:10:01 GMT
Link 200 OK http://www.itc.virginia.edu/images/navbar.map/
Image 200 OK http://www.itc.virginia.edu/images/navbar.gif
Last-modified: Wed, 21 Aug 1996 13:50:41 GMT
Link 301 Moved http://cti.itc.virginia.edu/tti
URI: http://cti.itc.Virginia.EDU/tti/
Link 200 OK http://www.itc.virginia.edu/itcweb/support/instruction/isrc/home.html
Link 200 OK http://toolkit.virginia.edu/toolkit/
Link 200 OK http://www.itc.virginia.edu/itcweb/support/instruction/dtc/home.html
Link 200 OK http://www.itc.virginia.edu/itcweb/support/instruction/id/metaindex.html
Link 200 OK http://www.itc.virginia.edu/itcweb/support/instruction/id/home.html
Link 200 OK http://www.itc.virginia.edu/itcweb/facilities/classrooms/home.html
Link 301 Moved http://jefferson.village.virginia.edu/uvamest
URI: http://jefferson.village.Virginia.EDU/uvamest/
Link 601 Not Tested mailto:itcweb@virginia.edu
Link 200 OK http://www.virginia.edu/~bova/
Link 200 OK http://www.virginia.edu/
Image 200 OK http://www.itc.virginia.edu/images/itclogo.gif
Last-modified: Thu, 22 Aug 1996 18:31:51 GMT

Figure 36-10: A report from link-checking software

- **Keep your index up-to-date so the search is always accurate.** If you are going to index your site to provide a search function, then you must be sure you have the index function running at some regular interval so your search function is always up to date. The index for a site with constant changes shouldn't be maintained manually because it's a hassle. Figure 36-11shows Cold Fusion's Verity Indexing, an automatic way to index a dynamic site.
- **Review and revise your content on a scheduled basis so it always sounds fresh.** Don't take this for granted. Lots of Webmasters publish content and forget about it. Even a month after you have published a page, you may have forgotten the details of what it says. Set aside time to review all your content on a regular basis. Is it any wonder maintaining a Web site is so expensive?
- **Keep your competitors' or alliances' information up-to-date.** Providing a comparison chart with features of your product and your competitors' products is not generally frowned upon, but it is bad form for your information about your competitors' products to be out-of-date. People will wonder what other information is incorrect. If you are going to include information about your competitors' products, keep it up!

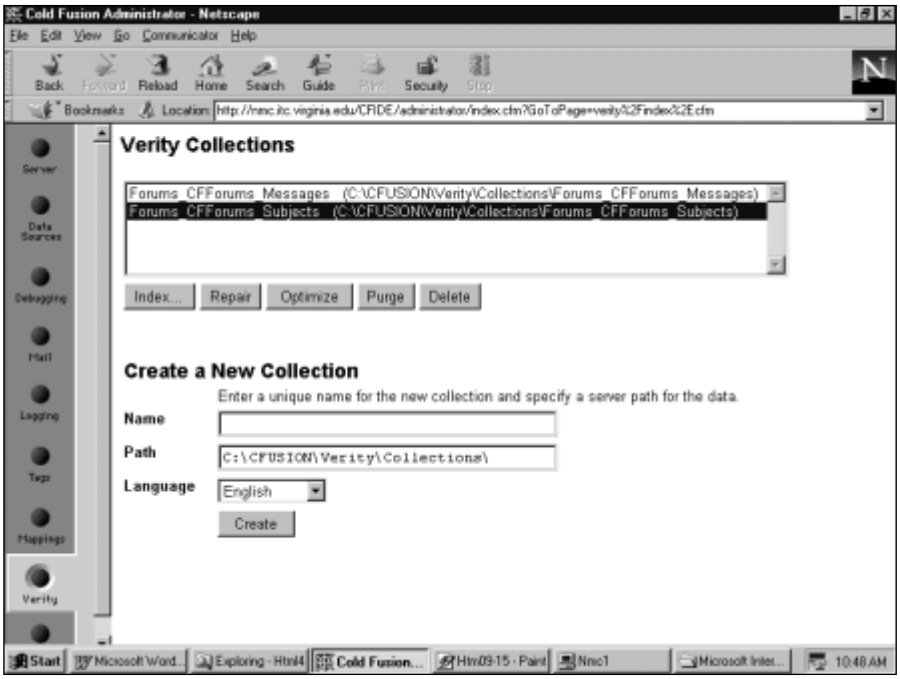

Figure 36-11: Cold Fusion's Verity Indexing

Bonus: Maintaining a Really Large Web Site

You may be getting in really deep. If you are or you think you may eventually be responsible for maintaining a thousand-page Web site, then you need to start thinking about two things: how will you manage the information and how will you manage the people who do the work? Some practices you may want to implement are as follows:

1. Create a Central Web Team. This team will be working on the Web site full-time.
2. Have all design decisions, all procedural changes, and all organizational decisions originate with the Central Web Team. You need to set a precedent right away that every page can't be unique. HTML 4 supports your decision to control the look of the site by providing you with style sheets. Create your style sheets at this level.

3. Have content originate with distributed Web developers who are closer to the content. These are basically loaners to the Central Web Team. We'll call them the *Distributed Web Team*.
4. Have meetings of both groups together. You need to keep the Distributed Web Team informed about new policies you institute, any changes to servers or accounts, and procedures you implement. You also want to be respectful of their time because you aren't their real boss and you want them to want to do the work for you.
5. Use e-mail to notify the Distributed Web Team of changes to the look and to procedures. Create a mailing list to notify the Distributed Web Team of changes. Consider having a mailing list where they can ask each other questions and help each other.
6. Have written procedures and standards for publishing a page for the Distributed Web Team. Tell them enough, but don't tell them more than they need to know. These are people who have other responsibilities. If you make the Web maintenance part of their jobs too big of a pain (with too much mail and too many meetings), then they will put it off and avoid you. Include information about linking to style sheets in your written instructions, with an example — or better yet, give them a copy of this book.
7. Organize accounts and permissions on your Web server so people can't accidentally delete or overlay each other's files. What files are called, where they go, and how they get there must be part of your written procedures. Publish your written procedures to a page on your Intranet so people can check on things without bothering you and so new members of the Distributed Web Team can get up to speed quickly.
8. Follow the procedures yourself that you impose on the Distributed Web Team. No cheating. You won't exactly inspire the trust and enthusiasm of the Distributed Web Team if you don't have to follow the rules yourself.

From Here

Jump to Chapter 32 for a refresher on the essentials of Web page design.

Refer to Chapter 8 and find the HTML editor that's right for you.

Proceed to Chapter 37 to learn about creating still graphics for the Web.

Summary

We covered a lot of ground in this chapter. You learned the pros and cons of developing a multipage site, effective ways to organize your site for easy navigation, and intelligent ways to break up your content into pages. You also learned about site architecture: good and bad ways to use hierarchy, as well as times when you may want to mix in linear architecture into your hierarchy.

You learned about the basics of navigational aids to make the journey through your Web site easy and intuitive for your visitors. We also covered the basics of site maintenance for most sites and, as a bonus, for really big sites.

✦ ✦ ✦